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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/610,668 07/05/00 BRIDGES

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EXAMINER

MMC2/1018

JAMES Y. GO
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KERVEROS, J.
ART UNIT PAPER NUMBER

2858
DATE MAILED:

7
10/18/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/610,668

Applicant(s)

BRIDGES ET AL.

Examiner

James C Kerveros

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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**METHOD AND APPARATUS
FOR SUB-MICRON IMAGING AND PROBING ON PROBE STATION**

Response to Amendment

This is a final Office Action in response to Amendment filed October 9, 2001, in reference to pending Claims 1-33.

The prior Office Action rejection, under 35 U.S.C. 112, second paragraph, is hereby withdrawn in view of the Amendment to the claims filed October 9, 2001

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 6-9, 15-18, 23-27, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay et al. (US 5983712), in view of Applicant's admitted prior art.

Lindsay discloses a probe apparatus of an atomic force microscope for profiling the properties of a surface and for probing the properties of individual molecules attached to that surface.

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Regarding Claims 1, 2, 4, 23 and 30 the probe apparatus, comprises:

- (a) A first positioning unit actuator (1, FIG. 3A, prior art) held in a fixed position.
- (b) A probe arm cantilever assembly (2, FIG. 3A) attached to the first positioning unit 1.
- (c) A second positioning unit flexible cantilever (3, FIG. 3A) attached to the probe arm.
- (d) A cantilever tip (4, FIG. 3A) attached to the second positioning unit.

Furthermore, Lindsay discloses in FIG. 9 a cantilever probe 48, which is attached to a scanning element such as a piezoelectric scanning transducer 50, which holds the probe above the surface 52 of sample DUT 54.

- (e) A motion sensitive detector (60, FIG. 9) for detecting the position of the cantilever probe. Laser beam (58, FIG. 9) is reflected from the back of cantilever probe 48 into a position so that deflections of the probe may be detected and recorded. Lindsay in the prior art discloses a piezoelectric actuator 1, which is used to sweep the stiff end of a cantilever 2 by some amount (labeled X_{subD}) toward the sample S as show in FIG. 1A.

Regarding Claims 6–9, 15-18, 24-27 and 33, Lindsay discloses image of the UUT, through mapping the topography of the UUT surface by scanning the probe over the surface of the UUT as shown in FIGURES. 10A-10D.

Claims 3, 5, 10-14, 19-22, 28, 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay et al. (US 5983712), as applied to claims 1, 23 and 30 above, in further view of Hellemans et al. (US 6091248).

Regarding Claims 3, 5, 10-14, 19-22, 28, 29, 31 and 32, Lindsay fails to disclose the identical structural and electrical measurement limitations of the claimed invention. However, as noted above Lindsay discloses obtaining images of the UUT through electric-al measurement. Furthermore, Hellemans discloses a method for measuring the electrical potential in a semiconductor element comprising an electrometer (10, FIG. 2, Hellemans) which measures the electrical potential through probe (3) of the semiconductor device UUT (1). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have performed electrical measurements using an electrometer technique in the device of Lindsay for the reasons of obtaining images of the surface of a UUT.

Response to Arguments

Applicant's arguments filed October 9, 2001 have been fully considered but they are not persuasive.

Claims 1, 2, 4, 6-9, 15-18, 23-27, 30 and 33 stand rejected under 35 U.S.C. 103(a) over Lindsay et al. (US 5983712), in view of Applicant's admitted prior art.

Claims 3, 5, 10-14, 19-22, 28, 29, 31 and 32 stand rejected under 35 U.S.C. 103(a) over Lindsay et al. (US 5983712), in view of Hellemans et al. (US 6091248), as set forth in the detailed Office Action, above.

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The Applicant argues that the Lindsay fails to teach or suggest a first positioning unit mounted on a probe station platform. The Examiner is directing the Applicant in the detailed Office Action that Lindsay discloses a first positioning unit actuator (1, FIG. 3A, prior art) held in a fixed position. In column 3, lines 1-5, clearly Lindsay illustrated schematically (FIGURE 3A, the prior art) the positioning unit where the actuator 1 is held in a fixed position, as is the rigid part of the cantilever assembly 2.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication from the examiner should be directed to JAMES C. KERVEROS at the telephone number below or the examiner's supervisor, SAFET METJAHIC at (703) 308-1436. The general fax phone number for the

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organization is (703) 308-7722. Any inquiry of a general nature relating to this application should be directed to the receptionist at (703) 305-4900.

JCK/File

Date: October 16, 2001

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